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ABSTRACT

An approach to the combination of typewriting instruction and English as a second language (ESL) instruction is described. A typewriting class can serve as a complement to ESL instruction while providing a useful skill. Incidental learning of both elements of language and the material being typed occurs while typing. An integrated program hypothesis is formulated that proposes an even more complex learning role for typing. A review of the literature supports the hypothesis that the subvocalizing and cognitive thought processes that occur while acquiring a language are also operative while learning to type. There is sufficient overlap between the two learning activities when presented simultaneously that there is mutual enhancement of the skills. The acquisition of typing skill passes through three stages: cognitive, associative, and autonomous. The language skills that can be taught during each of these stages and the practice materials used are discussed. Grammar classifications, comparative adjectives, homophones, phonological rules, the construction of paragraphs, the contextual use of language, and study skills can all be taught in an ESL typing class. The underlying philosophy of the approach is that the typewriter is an aid to ESL instruction rather than an end in itself, and that students will perform better if they believe that most of the language learning will occur automatically. (RW)

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A Nontraditional Approach to ESL Instruction: Typewriting

The underlying rationale for this paper is the apparent compatibility between typewriter skill acquisition and second language skill acquisition. According to theoretical insights, learning these two skills simultaneously using a dual approach makes it easier for students to acquire language in a classroom setting. This kind of learning system complements an ESL program while providing students with an obviously useful skill, i.e., typewriting.

In its century-long history, the typewriter has revolutionized the world of business, promoted the spread of English, and become an integral part of the now familiar computer terminals, or word processors. The typewriter also has a notable reputation as a teaching instrument. Formal research, as well as intuitive experience, indicates that elements of language, e.g., spelling, punctuation, capitalization, and the information in the material typed are both learned while typewriting. Pioneers in the field of typewriter education recognized that this automatic (incidental) learning can be exploited and that the typewriter can facilitate learning of whatever is typed. Yet, this startling knowledge has rarely been translated into precise methodology for the classroom until now.

This paper hypothesizes an even more complex role for the typewriter, in addition to this known incidental learning, particularly in learning a language. Specifically, this hypothesis is that the subvocalizing and cognitive thought processes that occur while acquiring a language are also operative while learning to typewrite; moreover, there is sufficient overlap

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between the two learning activities when presented simultaneously in a classroom that there is mutual enhancement of the skills. Further, my Integrated Program Hypothesis (IPH) in no way detracts from typewriting speed and skill. [In traditional typewriting classes, cognition, and subvocalization have been considered obstructive, interferring with the building of speed (McLean, 1978:4).]* An ESL methodology based on this IPH has been used successfully for over a decade (Bernstein, 1976).

The use of the typewriter as a learning instrument has been studied for years. These studies relate to typewriter learning in general and the psychology of perception and cognition as they apply to both language learning and typewriter learning. IPH, however, is the first formal presentation of an ESL methodology based on generalizations synthesized from these studies.

The first claim of incidental typewriter learning appeared over one hundred years ago in an advertisement in The Nation announcing an incredible device that could actually teach spelling and punctuation (Current, 1954:86). An early mention of psycho-kinetic processes was in 1890; the psychologist William James proposed in Principles of Psychology that a learning advantage could be gained when one "actively re-echoes" the words heard or read, in typewriter learning, a process which years later came to be known as "subvocalization."** And, to increase attention to the subject being learned, he suggested that an additional "something" should be associated with the learning task (James, 1969:246).

* Of course, ESL students read English slower and manual dexterity seems to be culturally conditioned, two factors which can affect individual variation in typing speed.

** To demonstrate this concept, monitor your thought processes and subvocalizing that occur while typing a foreign word or a word with intricate spelling, e.g., MNEMOSYNE, XENOPHOBIA, MEZZANINE, FACADE.

Highlighting actual typewriter-learning experimentation that has taken place is the landmark study started in 1930 by Drs. Wood and Freeman which involved nearly 15,000 students and 400 teachers and included schools from New York to New Mexico in the experimental and control groups. The study was conducted to discover the form and extent of the educational influence of the typewriter (incidental learning). This two-year investigation showed a correlation between using a typewriter for school work and scoring higher on periodic achievement tests (Wood, 1932).

Additionally, ongoing research by psychologists demonstrates that increased learning takes place when James' "something else" is associated with a distinguishable learning task. A 1974 psychological inquiry illustrating this point used the typewriter as a cover task while distinguishing between intentional and incidental learning. It was found that, in a group of 105 beginning typewriting students, one group in the study learned the factual material they typed (economics) even when not instructed to do so (incidental learning). These students learned how to type and they automatically absorbed some of the material they were typing. The other group of students was explicitly directed to read and concentrate on the material being typed (intentional learning). This second group learned significantly more information than even the incidental learning group had and achieved greater typewriting speed (Dawley, 1974).

Perhaps more relevant to IPH methodology is a 1964 project researching the role of the typewriter in the learning of English as a second or foreign language. It revealed that English learning was significantly greater in the experimental typewriting group (Mcleod, 1964). At the 1976

Languages and Linguistics Symposium at Brigham Young University, Hall (1976) reported on his own research in teaching another language by using the typewriter with specially constructed attachments. While there was variation in the method used, he noted that students often can expect to recite or be called upon in the regular language class no more than half a dozen times and otherwise are apt to be passive or disruptive in their attitudes and activities, whereas typewriting engages students much more intensely in active learning.

These findings are not surprising when one considers the fact that learning how to type involves psychological principles that also are operative during the process of acquiring another language. Language learning, like the acquiring of any skill involving the coordination of muscle and mind, is only partly a cognitive/cerebral process. In the book Syntax and Speech, Cooper (1980:227) considers typing a communication act which, when observed, suggests that pausing in typing, like in speech, normally coincides with major syntactic boundaries. Cooper also examined studies showing the parallel between speech and typing in the kind of motor planning used, strongly indicating the perception of syntactic cognates and the subvocalized rehearsal while typewriting.

Stephen Kosslyn, in his book Image and Mind, writes that there is no reason to presuppose that the mind has anything like a single "central core" or that it represents information in only one "language of thought." He contends that most work on memory may actually be studies of auditory and motor imagery representation (Kosslyn, 1980:479). Again, typewriting

includes all of these: the visual impact of the copy; the auditory aspect of subvocalization; and the motor, or kinesthetic, response of striking the keys.

Krashen (1981:40-50) defines language acquisition as the way linguistic abilities are internalized "naturally," without a conscious focusing on linguistic forms--a subconscious process. When the focus is off language forms and onto a different task, there is an unselfconscious use of language, a congruence; for example, in typewriting classes with the focus on the task of typing, there is an atmosphere where language acquisition could more easily take place than in a traditional language classroom where the focus is on grammatical paradigms. Supporting evidence is found in the typewritten work of language learners. The "monitor" Krashen refers to, the inhibitor or reviser of produced linguistic forms, is not turned on when the students are copying from their book (because of their focus), and they may substitute native pronunciations for the correct letter in the copy--the sound substitution is typed, e.g., FORK SONG from a Korean student. On the other hand, when composing exercises at the typewriter requiring conscious use of language, a student easily has the "time" (and self-consciousness) to watch out for mistakes and search for the rule of correct usage, i.e., to turn on his monitor, and then these sound substitutions are neither vocalized nor typed.

Based on the preceding analyses, we can reasonably expect facilitation of language acquisition and learning by linking it to typewriter acquisition and learning. Since a combination of language skill development and typewriter skill development forms

the basis of the IPH methodology, it is important to understand how the skill of typewriting is learned.

Basically, the skill of typewriting consists of mastery over a series of stroking habits--called chains--in which each motion in the series is largely based on the "feel" or kinesthetic cue of the preceding motion. [It can be noted that the peripheral chain theory of language was developed in detail by Washburn in 1916 (Blumenthal:185)]. It is now believed that at extremely high speeds some chains are "motor programs" in the brain, where executing the first part of the sequence triggers the remainder of the sequence (West, 1982:2). However, before any sequencing or chaining can take place, while the skill is still being learned, the finger responses are made on a letter-by-letter basis. Perception of each letter in the copy is the stimulus for each key stroke. At this time the learner pronounces each letter to himself as he strikes its key (West, 1974:9). In other words, subvocalization is intimately associated with the stimulus for stroking. In this first, or cognitive stage, "motions are awkward and diffuse, erratic rather than smooth. There is much verbal mediation preceding each response. . . " (West, 1982:2). This stage includes typing of up to 20 words per minute.

At the next level, some letters become chained and the typist perceives and vocalizes familiar words even before typing at the letter-by-letter level. This second stage is the associative stage with increased proficiency at letter-by-letter stroking and some sequencing (chaining) of short, easy, high-frequency words or letters. "Even the 40 words per minute typist performs mainly on a letter-by-letter basis.

His superiority over the 10 words per minute typist lies almost entirely in greater mastery over low-order, letter-by-letter stroking habits rather than in appreciable use of higher-order sequenced responses" (West, 1974:3). Indeed, it is not until speeds of about 60 words per minute that the perception and subvocalization of individual letters and familiar words chain more noticibly as the gap between the typist's reading and typing speeds get smaller. It is this third, autonomous, stage which actually includes speeds above 30 words per minute. "By no means, however, should it be supposed that even champion typists operate exclusively on that level. Instead, difficult and rare sequences. . . are executed letter-by-letter, in associative fashion" (West, 1982:2).

The implications for beginning or intermediate typists are now surfacing--what better way to implement learning of the phonic and visual patterns of English than when the student is learning the keyboard. This rehearsal of responses through subvocalization, intellectualization, and copying of written material forms an external feedback loop to maintain the information being typed in short-term memory, thus overcoming normal rapid decay and improving the transfer to long-term memory. Because subvocalization is so important to this process, IPH recommends use of frequent overt vocalization sessions as an integral part of the learning system, working on pronunciation and explanation of new material (Bernstein, 1974).

In this beginning phase of typewriter learning, sentence meaning is not primary and, even though the student can read and comprehend a sentence before typing it, it is the constituent sentence parts that take on importance because of the letter-by-letter typing. Therefore,

while we do strive to teach some traditional grammar classifications, they must be on the level of individual words or parts of speech for effective use in typing skill development.

Language elements that require active discrimination such as comparative forms of adjectives or homophones are workable items in the early stages of typewriter learning. Students presented with homophones process all possible interpretations of the word before arriving at its meaning, thereby building up the variety of responses necessary for the multi-encoding process which occurs in language use and while typewriting (Shanon, 1974). For example, this process takes place when a student types BEAR and BARE or, for that matter, any word that has several definitions. As an example, the lexeme RIGHT is a noun, an adjective, an adverb, and a verb; it has four spellings and ten meanings, several of which can be processed at any one time as the letter sequence is being typed.

Considering the kind of practice materials needed to acquire typewriting skill, the customary tactic for vocational and personal use typewriting classes is to devote large amounts of practice to the short and commonly occurring words in order to build letter chains by intensive repetition of small units of material. However, this methodology can cause an accumulation of both mental and muscular inhibitions. The use of an unrestricted vocabulary of ordinary prose, on the other hand, which contains the various letter sequences in precisely the proportions in which they occur in the language,will better serve the learning of typewriting (West, 1974:3). This use of ordinary prose has its correspondence

in a specific language learning hypothesis which suggests that phonological rules are best illustrated by varying pronunciations of the root rather than inhibitive repetition. For example, it is not the lexeme SIGN that is to be mastered, it is the sequence S-I-G-N as it may occur in other lexemes as SIGN, SIGNAL, DESIGN, SIGNATURE, RESIGNATION (Blumenthal, 1970:170).

It seems appropriate, therefore, to prolong this initial keyboard learning stage (beyond the expected time usually devoted to it in vocational typewriting manuals for native English speakers) in order to take advantage of the English learning processes available to students at the cognitive stage of typewriter learning. Typewriting experts recommend that the keyboard should be taught as quickly as possible so that students can type "real-life material" as soon as possible (McLean, 1978:17). Suggested time is two to four weeks. (Classes meet one hour per day, five days a week in vocational typewriting classes.) The IPH methodology is different in that classes meet only three to four hours per week and all lessons include meaningful learning material. Also, from the sixth lesson onward, students are producing and generating novel sentences in addition to learning e.g. pronunciation, vocabulary, spelling (Bernstein, et al, 1982).

Then, after the keyboard is learned, another area of applicability becomes available in addition to the ones discussed above. Teachers can emphasize the interrelationship between sentences, the construction of paragraphs, and the contextual use of language. By the kind of copy provided in the text, teachers can orient students to the register (special language) of any particular interest group, such as scientists or businessmen. We can inform students of our customs and habits. And, by

keeping the material academic and varied, we can heighten the students' attention and delay the automation and chaining in their typing skill development (which will come about in any event), allowing more time for language learning.

Study skills can easily be integrated into an IPH class. An overt awareness of how to study is necessary at the university level, as is knowledge of the form and function of the research paper. In fact, a main focus of some IPH classes is often the "term paper," including its preparation, writing, and typing. A related unit of learning that is part of typewriting instruction is the proofreading of completed typewritten material. It can be used as a means of: (1) fixing the left-to-right reading habit; (2) inducing faster reading; and (3) intensifying learning, as a recently reported study of graduate students shows (Wolk, 1974). Note taking and the value of typing one's handwritten notes after class is also taught as an important study skill.

The philosophy inherent in IPH, i.e., that the typewriter is an aid to ESL instruction rather than an end in itself, influences the classroom atmosphere and creates strategies for teaching. Students are led to believe that much of the learning in this class is automatic--the mind is like a computer and will learn both English and typewriting automatically and easily. The more this belief is repeated and the more students are convinced of this truth, the easier it is for them to learn both English and typewriting. In fact, students must be cautioned against trying too hard, since it will interfere with learning.

Furthermore, a workshop atmosphere is created in the class as the IPH method promotes student interaction, in English, with those around them. This interaction is usually encouraged as it stimulates "real" use of language while learning another subject (typing). In addition, students and teacher can relate on a one-to-one basis as the teacher walks around the room during the typing intervals and stops for occasional comments and questions at each student's desk. Individualization is facilitated with more direction for some, less for others, extra work for the faster typists and written homework for the slower typists. As a result of this workshop atmosphere, the teacher can be sympathetic and understanding rather than judgemental. Inhibitions are reduced as students do not need to hear constant teacher reinforcement or correction; the typewriter itself acts as another source of support.

Use of the typewriter as part of the language learning experience may at first appear to involve only incidental learning; but in practice it becomes an integral part of the acquisition process, a motivating force, a feedback link, and a means of heightening the intentional learning of language. But to achieve the full synergism which the typewriter can add to the language learning process requires carefully constructed and purposeful materials as well as the instructor's understanding of the principles involved. English at Your Fingertips is an example of how to utilize the principles described in this paper (Bernstein, et al, 1982). Phonological and lexical aspects of language are introduced at the initial alphabet or key learning phase where they are best learned. Syntactic variations are included later as more of the keyboard is learned.

Paragraph construction and logical internal structuring are introduced after students are rather more advanced in their typewriting proficiency. At the same time vocabulary, pronunciation, spelling rules, punctuation, word order, and reading speed (aspects of language learning) are taught during all typewriter learning stages in each lesson.

And so, the typewriter can be that additional "something" suggested by James, which acts as an instrument of active "re-echo," inducing a form of subvocalization and rehearsal of the copy being typed. These older perspectives coupled with newer ones from language acquisition theory and typewriting skill development theory, as presented in this paper, lead naturally to a viable adjunct learning system for ESL students. IPH represents a far more sophisticated conceptualization of typewriter teaching over and above the machine's obvious personal and vocational applications.

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